

**[00141] CLAIMS**

What is claimed is:

**[00142] 1. A decoder for decoding encoded data wherein identical frames**

5 may be obtained even when they are predicted using different reference frames, said decoder comprising:

means for forming a prediction of a current block of data using a plurality of motion vectors and a reference frame;

means for calculating a plurality of transform coefficients for said current block of data corresponding to a set of basis functions;

10 means for quantizing said coefficients creating a plurality of quantized prediction image coefficients;

means for obtaining a plurality of quantized reconstruction image coefficients by adding said received quantized coefficients for the prediction error to said plurality of quantized prediction image coefficients; and

15 means for dequantizing said plurality of quantized reconstruction image coefficients.

**[00143]** 2. A decoder for decoding a block of encoded data wherein identical frames may be obtained even when they are predicted using different reference frames, said decoder comprising:

frame memory for storing a reference frame;

5 demultiplexor for receiving and demultiplexing said encoded data into motion information and a current frame;

10 motion compensation predictor coupled to said demultiplexor and said frame memory for receiving said motion information and constructing a prediction of the current block based on said motion information and reference frame;

transformer coupled to said motion compensation predictor for creating a plurality of transform coefficients;

quantisationizer coupled to said transformer for quantizing said plurality of coefficients; and

15 adder coupled to said quantisationizer and said demultiplexor for adding current frame information and said quantized plurality of coefficients to form a reconstructed frame.

**[00144]** 3. The decoder of claim 2, further comprising:

inverse quantizationizer coupled to said adder; and

20 inverse transformer coupled to said inverse quantizationizer.

**[00145]** 4. A method for encoding a frame of video data, comprising the steps of:

forming a prediction of a current block of data using a plurality of motion vectors and a reference frame;

5 calculating a plurality of transform coefficients for said current block of data corresponding to a set of basis functions;

quantizing said coefficients creating a plurality of quantized prediction image coefficients;

10 obtaining a plurality of quantized reconstruction image coefficients by adding said received quantized coefficients for the prediction error to said plurality of quantized prediction image coefficients; and

dequantizing said plurality of quantized reconstruction image coefficients.

**[00146]** 5. A method for switching between a plurality of bitstreams in a

15 data communication system, wherein said bitstreams correspond to a same data sequence but are encoded at different bitrates, said method comprising the steps of:

20 placing a first picture within each of said plurality of bitstreams in locations at which switching from one of said plurality of bitstreams to another one of said plurality of bitstreams is desired;

transmitting a second picture wherein said first picture and said second picture are represented by different bitstreams, but wherein said first picture and said second picture reconstructed values are identical.

**[00147]** 6. A method for enabling access in a data stream, said method comprising the steps of:

placing a plurality of SP-pictures at fixed intervals within a first bitstream;

5 generating an I-picture and an SP-picture for each one of said plurality of SP-pictures in said first bitstream;

storing said I-picture in a second bitstream at a temporal location preceding said each one of said plurality of SP-pictures in said first bitstream; and

10 storing said SP-picture in said second bitstream at same temporal locations as each of said SP-pictures in said first bitstream.

**[00148]** 7. The method of claim 6, wherein said second bitstream comprises only SP-pictures predicted from each other, but at longer temporal periods.

**[00149]** 8. A method for providing Video Redundancy Coding (VRC), comprising the steps of:

dividing a sequence of pictures into a plurality of threads wherein all pictures are assigned to one of said plurality of threads in a round-robin fashion;

coding each of said plurality of threads independently;

20 creating a frame, wherein all of said threads converge; and

starting a second plurality of threads from said frame.

[00150] 9. A method for providing error control in a data stream between a sender and a client in a communication system, said method comprising:

creating a plurality of representations of a frame in the form of a plurality of SP-pictures predicted from different reference pictures;

5 signaling said sender information regarding lost frames and a one of said plurality of representations received by said client; and

sending said client a SP-picture which is the next picture in said one of plurality of representations received by client.

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